[22750/405A]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors	:	Hans-Michael KÜHL et al.
Serial No.	:	09/835,261
Filed	:	April 12, 2001
For	:	ELASTOMER FLOOR COVERING AND METHOD FOR ITS MANUFACTURE
Examiner	:	Tamara Dicus
Art Unit	:	1774
Confirmation No.	:	5004

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Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

DECLARATION UNDER 37 C.F.R. § 1.131

SIR:

Firma Carl Freudenberg, assignee of the above-identified application by virtue of an assignment executed on June 16, 1999 and recorded in the U.S. Patent Office on June 28, 1999 at reel and frame no. 010076/0408, declares and states as follows:

1. Hans-Michael KÜHL, Gerhard GRAAB and Klaus HECKEL ("the inventors") are the named inventors of the above-captioned application.

2. The inventors conceived of the subject matter described and claimed in the above-captioned application prior to March 12, 1998.

3. Attached hereto as Exhibit 1 is a Development Formulation, dated December 18, 1997, including formulations F and G, used to make a floor covering of the present invention prior to March 12, 1998. Attached as Exhibit 2 is a Testing Results document dated December 17, 1997 including testing results for formulations F and G.

(a) As can be seen in the Development Formulation document, the floor covering formulations F and G contain between 3 and 20 percent, specifically, 6.6 percent (20,000/303,700), by weight with respect to the floor covering's total weight, of a copolymer of ethylene including at least vinyl esters of saturated carboxylic acids having up to 4 C-atoms in the acid group.

(b) As further can be seen in the Development Formulation document in Exhibit 1, the floor covering formulations F and G contain an ethylene content of the copolymer between 40 and 95% by weight and a comonomer content of between 5 and 60% by weight. Specifically, (i) formulation F uses Evathane ®, which is an EVA having a 28% vinyl acetate concentration, an ethylene portion of 72% in the coplymer and a comonomer content of 72% by weight, and (ii) formulation G uses Levapren ® 500 HV, which has a vinyl acetate concentration of 50%, an ethylene portion of 50% and a comonomer content of 50% by weight. The melt flow indices of both copolymers Evathane ® of formulation F and Levapren ® of formulation G are between 0.1 and 50. Data sheets for Evathane ® and Levapren ® are included in Exhibits 3 and 4.

4. Attached hereto as Exhibits 5 and 6 are top and side photographs of two sample pieces of floor covering, labeled Version I and II, respectively, made by the inventors using the teachings of the present invention prior to March 12, 1998. The samples are cut from floor coverings having a width of between 1 m to 2 m. The floor coverings each have a thickness between 1.5 and 3.5 mm, more specifically, approximately 2 mm, and do not vary in thickness along their respective widths more than 5%. The floor coverings are homogenous and, as can be seen in the photograph, have a multicolored directionless pattern.

5. The inventors exercised diligence in constructively reducing to practice the subject matter described and claimed in the above-captioned application from at least a time prior to March 12, 1998 continuously up to June 28, 1999 the filing date of application serial no. 09/344,975 in the United States Patent and Trademark Office. The present application is a divisional application of application no. 09/344,975, which issued as U.S. Patent No. 6,251,321. During that time, the inventors provided information to patent counsel for preparation of the above-captioned application and reviewed and revised drafts of the above-captioned application.

Drafts of the German priority patent application were received by at least one of the inventors from patent counsel on July 8, 1998. Further, drafts of the above-captioned U.S. patent application were provided by patent counsel to at least one of the inventors by at least correspondence dated June 4, 1999.

6. Firma Carl Freudenberg hereby declares that all statements made herein of its own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 35 U.S.C. § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: 18 March 2005

ppa

Name: Joachim Horn
Title: — Procurists —
On Behalf of Firma Carl Freudenberg

EXHIBIT 1

Freudenberg
Bausysteme K

(i)

Freudenberg

Kühl / FB-E

SAP-Nr. 700 000 19

Waage	Kneter	Walze	Presse	Datum	Bearbeiter	Anschluß	
				18.12.97	Kl		F / G / H

Betreff: **Streubelag**

DEVELOPMENT FORMULATION

	Entwicklungs-Rezept	F	G	H		
						Vulk.°C Min
						170 - 5
	Evathane 28.05	-	20,000	-		
	Levapren 500 HV	20,000	-	-		doppelter Ansatz DOUBLE BATCH (OR FORMULATIO
	Ker 1904	17,500	17,500	20,000		
	Ker 1502	37,100	37,100	59,600		bitte benachrichtigen PLEASE NOTIFY
	SMR 5 CV	25,000	25,000	-		
	VN 3	15,000				
	Sillitin N 87	160,000	160,000	60,000		zu Plus-Korn mahlen GRIND TO PLUS-KORN
	Argirec B 24	-	-	60,000		
	Martinal OL-104	-	-	20,000		
ZINC OXIDE	Zinkoxid spezial SPECIAL	5,000				
BENZOIC ACID	Benzoesäure	2,500				
	Ralox LC	0,800				
MICROCELLULAR	Microzellmehl POWDER	6,000	6,000	-		
	Bayertitan RU 5	11,400				
IRON OXIDE	Eisenoxid Rot 130 B RED	0,700				
IRON OXIDE	Eisenoxid Gelb 920 YELLOW	0,300				
	Oppasinblau 6900	0,700				
	Schwefel 80/90 5% SULPHUR	3,600				
STEARIC	Stearinsäure ACID	1,400				
	Norsolene S 115	2,000				
PARAFFIN	Paraffin	0,700				
HOECHST WAX	Hoechstwachs PA 520	0,600				
	Aktiplast PP	-	-	2,000		
POLYGLYCOL	Polyglykol 6000	5,000				
	CZ-Batch	7,000				
	Mixland ZBEC E 70	1,400				
		303,700				

VULCANIZATION BEHAVIOR	Vulkanisationsverhalten		Technolog. Daten	TECHNOLOGICAL DATA
	ML1 + 4 bei AT	100 °C	Resteindruck REMAINING	IMPRESSION TEST
	t5 bei AT	140 °C	Xenotest 350 MWs/m²	XEND TEST
	Elastograph bei AT	°C	Abrieb 5 N	ABRASION
STORAGE AT	speichern unter:	streu1 / F-H	Sauerstoffindex (FB-E)	OXYGEN INDEX

EXHIBIT 2

Streubelag SKID-PROOF GROUND [OR FLOOR] LINING [LITERALLY: SCATTERED-ON COVERING]

Versuche in der Laborpresse (Hr. Platzer) EXPERIMENTS USING LAB PRESS
Ermittlung der Reißwerte ASCERTAINING BREAKING STRENGTH

MIXTURE Mischung	spezif. Pressendruck/bar (SPECIFIC PRESS PRESSURE) BAR	Zugfestigkeit (STRENGTH) längs/MPa LONGITUDINAL MPa	Zugfestigkeit quer/MPa TRANSVERSE	Reißdehnung (ELONGATION) längs/MPa	Reißdehnung quer/MPa	
A 913	20	4,9	4,9	32	32	
	30	5,0	5,0	29	32	
	200	6,0	5,6	127	129	
B ch. NR	20	4,9	4,9	27	26	
	30	5,0	5,1	25	25	
	200	5,9	5,4	131	137	
C Argitec	20	5,5	5,5	28	28	
	30	5,5	5,7	26	28	
	200	9,4	8,3	271	282	
D Styrol (STYROL)	20	6,4	5,7	20	19	
	30	5,6	5,7	20	20	
	200	9,6	8,6	86	80	
E mega Betr.	20	4,4	4,3	23	26	

Abrieb (DIN)

							Härte
101	F + Levapren	20	4,0	3,8	147	150	89
95		30	4,0	4,1	174	162	~~89~~
		200	5,4	4,8	262	236	90
102	G Erathane	20	4,2	4,1	90	68	93
107		30	4,3	4,5	101	115	93
113		200	4,9	5,5	200	224	94
114	H Argitec Marginal	20	4,8	4,8	42	54	95
104		30	4,9	5,0	58	56	96
118		200	6,2	6,5	254	232	96

EXHIBIT 3

EVATANE®

COPOLYMÈRES EVA HAUTE TENEUR
HIGH CONTENT EVA COPOLYMERS
HOCHPROZENTIGE EVA COPOLYMERE

Grades *Grades* Typen	Caractéristiques spécifiées *Specified properties* (*) Spezifizierte Eigenschaften Teneur AV *VA content* VA Gehalt (%)	Indice de fluidité *Melt index* Schmelzindex (g/10 mn)	Point de fusion *Melting point* Schmelzpunkt (°C)	Point Vicat *Vicat Point* Vicat Punkt (°C)
18-150	17 - 19	135 - 175	79	43
18-500	17 - 19	450 - 550	74	< 40
24-03	23 - 25	2,5 - 3,5	79	45
28-03	26 - 28	3 - 4,5	75	44
28-05	27 - 29	5 - 8	73	43
28-25	27 - 29	22 - 29	72	41
28-40	27 - 29	35 - 45	72	40
28-150	27 - 29	135 - 175	67	< 40
28-420	27 - 29	370 - 470	67	< 40
28-800	27 - 29	700 - 900	64	< 40
33-25	32 - 34	22 - 29	60	< 40
33-45	32 - 34	38 - 48	60	< 40
33-400	32 - 34	350 - 450	59	< 40
40-55	38 - 41	48 - 62	50	< 40
Méthode de mesure *Test method* Testmethode	ATOCHEM (IRTF) *ATOCHEM (FTIR)* ATOCHEM (FTIR)	NFT 51-016 *ASTM D 1238* DIN 53735	A.T.D. *D.S.C.* D.S.C.	NFT 51-021 *ASTM D 152* DIN 53460
ISO STANDARD		1133		306

(*) Caractéristiques contrôlées faisant partie intégrante de nos plans de contrôle qualité usine.

Caractéristiques moyennes - *Typical properties* - Typische Eigenschaften

Température bille - anneau *Ring and ball temperature* Ring- und Kugelwert (°C)	Résistance à la rupture *Tensile strength at break* Zugfestigkeit (MPa)	Allongement à la rupture *Elongation at break* Reissdehnung (%)	Dureté *Hardness* Härte Shore A	Masse volumique *Density* Dichte (g/cm³)
95	5	500 - 800	84	0,93
88	4	500 - 800	80	0,93
165	29	700 - 800	85	0,94
160	33	700 - 1000	83	0,95
140	33	700 - 1000	82	0,95
120	13	700 - 1000	76	0,95
110	11	700 - 1000	76	0,95
90	6	700 - 1000	70	0,95
82	2,5	700 - 1000	62	0,95
78	1,5	300	57	0,95
115	12	800 - 1000	66	0,96
107	10,5	800 - 1000	64	0,96
80	2,5	800 - 1000	45	0,96
100	5	1000	46	0,96
NFT 66-008 *ASTM E 28*	NFT 51-034 *ASTM D 638* DIN 53455		NFT 51-109 *ASTM D 2240* DIN 53505	NFT 51-063 *ASTM D 1505* DIN 53479
	R 527		868	R 1183

(*) Properties routinely measured during the standard quality control procedure.

Applications principales - *Main applications* - Hauptanwendungsgebiete

Adhésifs *Hot Melts* hmelzkleber	*(Co) Extrusion*	Mousses *Foams* Schäume	Compounds			Additifs-Additives	
			Câbles *Cables* Kabel	Insonorisation *Sound dampening* Geräuschdämpfung	Autres *Others* Andere	Bitumes *Bitumen* Bitumen	Pétrole *Crude oil* Rohöle
●						●	
●							
●	●	●	●		●		
●	●		●		●		
●	●	●	●	●	●		
●	●		●	●	●		
●					●		
●							
●			●	●			●
●							●
●			●		●	●	
●					●	●	
●							
●			●		●		

Tous les grades EVATANE® contiennent de l'antioxydant.

All the EVATANE® grades contain antioxidant.

Alle EVATANE® Typen enthalten Antioxydant.

(*) Diese Eigenschaften sind der Durchführung des Qualitäts-Kontrollplans unserer Werke verpflichtigt.

EXHIBIT 4

Product Data Sheet

LANXESS

Levapren® 500 HV

Product Description

Ethylene-vinyl acetate copolymer (EVM) with 50 wt % vinyl acetate

Raw Polymer Properties

Property	Nominal Value	Unit	Test Method
Mooney Viscosity ML (1+4) 100°C	27 ± 4	MU	ISO 289
Volatile matter	max. 0.6	wt %	ISO 248
Vinyl acetate content	50 ± 1.5	wt %	LP testing instruction No.015

Other Product Features

Property	Typical Value
Specific gravity	approx. 1.00 g/cm³
Total Ash	max. 0.8 wt % ISO 247
Solubility	Soluble in chlorinated and aromatic hydrocarbons

LANXESS

Levapren® 500 HV

Packaging	The material is packaged in polyethylene bags and delivered on a pallet containing 40 bags (net weight per pallet 1000 kg). If requested, the material can be delivered in Big Bags (500 kg).
Shelf-life	24 month from date of production at temperatures not exceeding 25 °C in dry conditions; exposure to light has to be avoided. At higher temperatures or pressures the granules tend to agglomerate. For this reason the flowability of this product cannot be guaranteed.
Product Safety	Relevant safety data and references as well as the possibly necessary warning labels are to be found in the safety data sheet no. 077651.

These raw material properties are typical and, unless specifically indicated otherwise, are not to be considered as delivery specification.

Issue number: LXS 01 / Date of issue: December 02, 2004 / Previous issue from 02-03-2001

EXHIBIT 5

Version I

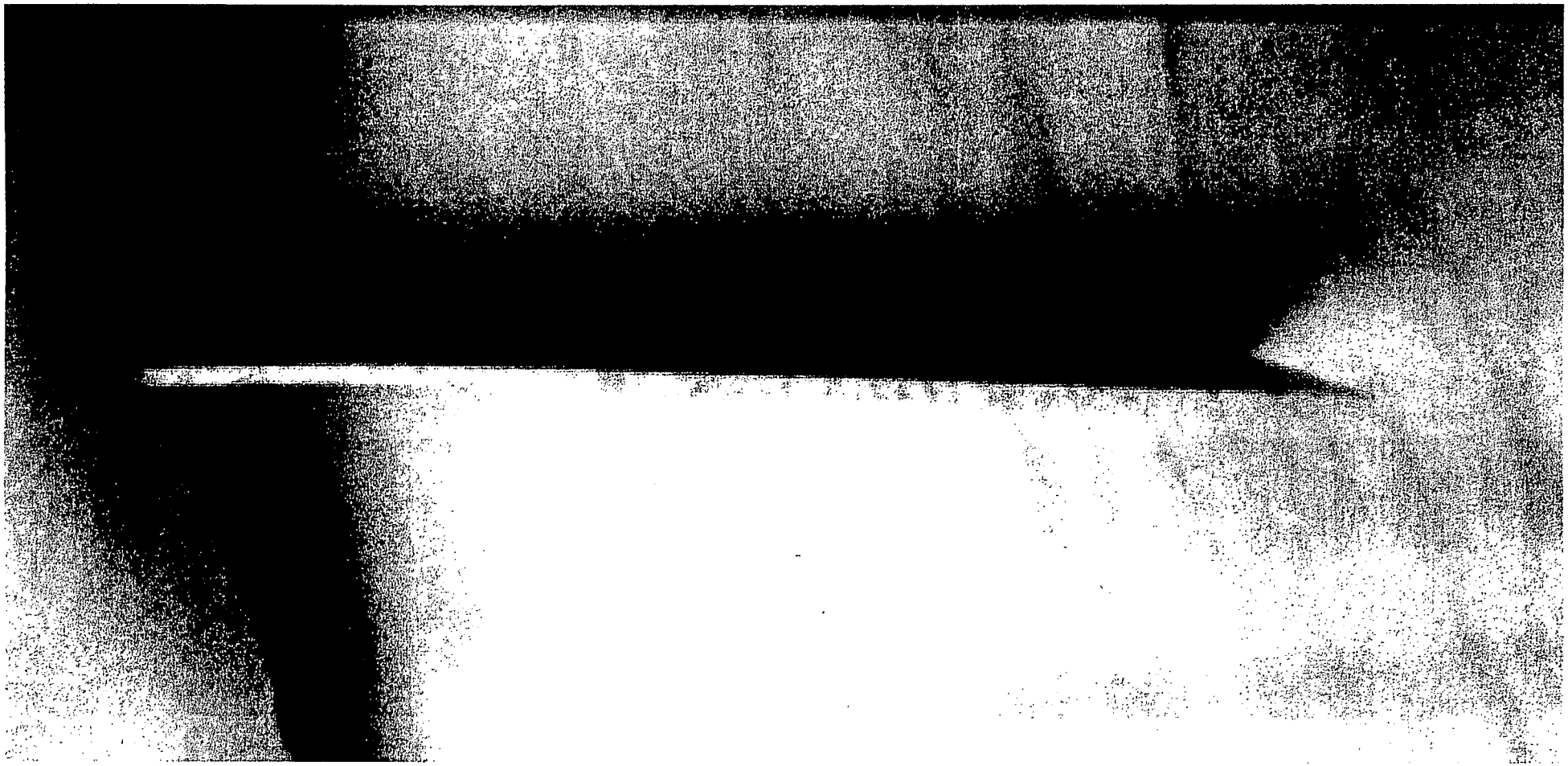

EXHIBIT 6

Version II